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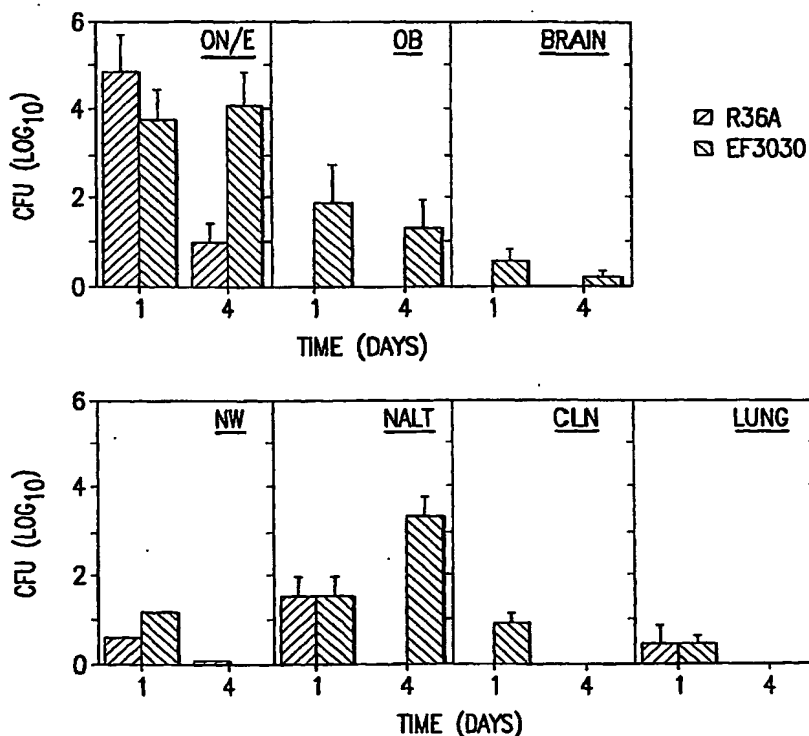
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(54) Title: COMPOSITIONS FOR REDUCING BACTERIAL CARRIAGE AND CNS INVASION AND METHODS OF USING
SAME



(57) Abstract: Provided herein are compositions designed to reduce or prevent bacterial infections (for example pneumococcal infections), nasal carriage, nasal colonization, and central nervous system invasion. Provided herein is a composition comprising a pneumococcal neuraminidase, phosphocholine, pneumococcal teichoic acid, pneumococcal lipoteichoic acid, or an antigenic portion of either neuraminidase, phosphocholine, pneumococcal teichoic acid, pneumococcal lipoteichoic acid. Optionally, the composition can comprise any combination of a pneumococcal neuraminidase, a phosphocholine, a pneumococcal teichoic acid, a pneumococcal lipoteichoic acid or an antigenic portion of any one of these. Optionally the agents are detoxified. Further provided are methods of making and using the compositions disclosed herein. Specifically provided are methods of generating antibodies in a subject comprising administering to the subject an agent or composition taught herein. Also

provided are methods of reducing or preventing nasal carriage or pneumococcal infection in a subject comprising administering to the subject a composition taught herein.

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